

WHAT IS CLAIMED IS:

1. A pneumatic rubber tire of an open toroidal shape comprised of a tire carcass having an included cavity with a rubber innerliner layer on its inner surface
5 within said cavity characterized by an improvement which comprises a built-in, non-black colored, puncture sealing layer covered by said rubber innerliner layer, wherein said puncture sealing layer is comprised of an organoperoxide partially depolymerized butyl rubber, wherein said puncture sealing layer contains from zero to 0.5 phr of carbon black and is comprised of, based upon parts by weight per 100 parts by weight
10 of said partially depolymerized butyl rubber:
 - (A) an at least partially organoperoxide-depolymerized butyl rubber wherein said butyl rubber is comprised of a copolymer of isobutylene and isoprene comprised of about 0.5 to about 5 percent units derived from isoprene;
 - (B) particulate filler, other than carbon black, comprised of:
15
 - (1) about 5 to about 90 phr of synthetic amorphous silica, preferably precipitated silica, preferably exclusive of a coupling agent for said silica,
 - (2) about 5 to about 40 phr of agricultural organic plant seed flour, and
 - (3) from zero to about 40 phr of clay.
 - (C) from zero to about 6 phr of short organic fibers,
 - 20 (D) optionally a colorant of other than a black color and in addition to said silica, flour and clay, wherein said colorant is selected from at least one of organic pigments, inorganic pigments and dyes, preferably selected from organic pigments and inorganic pigments;
 - 25 (E) from zero to about 20 phr of rubber processing oil, and
 - (F) from zero to about 15 phr of liquid cis 1,4-polyisoprene polymer.
2. The tire of claim 1 wherein:
 - (A) said organoperoxide partially depolymerized butyl rubber is comprised
30 of a copolymer of isobutylene and isoprene comprised of about 0.5 to about 1.0 percent units derived from isoprene;
 - (B) said particulate filler is comprised of:
 - (1) about 10 to about 20 phr of precipitated silica exclusive of a

coupling agent for said silica,

(2) about 5 to about 30 phr of agricultural organic plant seed flour,

and

(3) from zero to about 40 of kaolin clay;

5 (C) zero to about 6 phr of short organic fibers,

(D) said colorant;

(E) from zero to about 20 phr of rubber processing oil having a maximum aromatic content of about 15 weight percent, and preferably a naphthenic content in a range of from about 35 to about 45 weight percent and preferably a paraffinic content
10 in a range of from about 45 to about 55 weight percent, and

(F) from zero to about 15 phr of liquid cis 1,4-polyisoprene polymer.

3. The tire of claim 2 wherein, for said puncture sealant layer, said particulate filler, exclusive of carbon black, is comprised of:

15 (A) about 10 to about 20 phr of precipitated silica,

(B) about 5 to about 30 phr of agricultural organic plant seed flour,

(C) zero to about 40 phr of said clay,

(D) zero to about 6 phr of short organic fibers, and

(E) and said colorant.

20

4. The tire of claim 2 wherein said puncture sealing layer contains from about 0.5 to about 5 phr of short organic fibers.

5. The tire of claim 2 wherein, for said puncture sealing layer, said colorant
25 is selected from pigments and inorganic pigments.

6. The tire of claim 2 wherein, for said puncture sealing layer, said colorant is comprised of titanium dioxide.

30 7. The tire of claim 2 wherein, for said puncture sealing layer, said rubber processing oil has a maximum aromatic content of about 15 weight percent, a naphthenic content in a range of from about 35 to about 45 weight percent and a paraffinic content in a range of from about 45 to about 55 weight percent.

8. The tire of claim 2 wherein said puncture sealing layer contains from about 2 to about 5 phr of liquid cis 1,4-polyisoprene polymer.

9. The tire of claim 2 wherein said puncture sealant layer has storage modulus (G') in a range of from about 5 to about 50 kPa.

10. A method of preparing a pneumatic tire having a puncture sealing ability as a tire assembly comprised of an assembly of components comprised of an outer circumferential (sulfur curable) rubber tread, rubber carcass supporting said tread (containing cord reinforced, sulfur curable, carbon black reinforced rubber plies) and an inner (carbon black reinforced and usually sulfur curable) halobutyl rubber tire innerliner layer, which comprises:

(A) positioning a layer of an uncured butyl rubber-based rubber composition, exclusive of sulfur curative, as a sealant layer precursor between said innerliner and rubber carcass or between two of said innerliners, wherein said sealant precursor butyl based rubber composition is comprised of, based upon parts by weight per 100 parts of butyl rubber (phr):

(1) 100 parts by weight of butyl rubber as a copolymer comprised of isobutylene and isoprene which contains from about 0.5 to about 5 weight percent units derived from isoprene,

(2) about 5 to about 90 phr of particulate filler, exclusive of carbon black, comprised of:

(3) about 5 to about 90 phr of particulate amorphous silica aggregates, preferably precipitated silica,

(4) about 5 to about 40 phr of said plant-derived seed-flour,

(5) from zero to about 20 phr of clay,

(6) from zero to about 6 phr of said short organic fiber,

(7) from zero to about 15 phr of liquid polyisoprene,

(8) non-black colored pigment colorant to impart a non-black color to said sealant precursor butyl rubber composition,

(9) from zero to about 20 phr of rubber processing oil, and

(10) an active organoperoxide; and

(B) vulcanizing said tire assembly at a temperature in a range of from about 130°C to about 175°C for a sufficient period of time to partially depolymerize said butyl rubber and thereby form a built-in sealant layer within said tire assembly.

5 11. The tire of claim 3 wherein said puncture sealing layer contains from about 0.5 to about 5 phr of short organic fibers.

 12. The tire of claim 3 wherein said puncture sealing layer contains from 5 to 15 phr of kaolin clay.

10

 13. The tire of claim 3 wherein, for said puncture sealing layer, said colorant is selected from pigments and inorganic pigments.

 14. The tire of claim 3 wherein, for said puncture sealing layer, said
15 colorant is comprised of titanium dioxide.

 15. The tire of claim 3 wherein, for said puncture sealing layer, said rubber processing oil has a maximum aromatic content of about 15 weight percent, a naphthenic content in a range of from about 35 to about 45 weight percent and a
20 paraffinic content in a range of from about 45 to about 55 weight percent.

 16. The tire of claim 3 wherein said puncture sealing layer contains from about 2 to about 5 phr of liquid cis 1,4-polyisoprene polymer.

25 17. The tire of claim 3 wherein said puncture sealant layer has storage modulus (G') in a range of from about 5 to about 50 kPa.